

REMARKS

Favorable reconsideration and allowance of the present application are respectfully requested in view of the following remarks. Claims 1-12 were pending prior to the Office Action. Claims 13-22 are added through this Reply. Therefore, claims 1-22 are pending. Claims 1, 2 and 7 are independent.

The amendments to the claims are fully supported by the original disclosure and do not add new matter.

CERTIFIED COPY OF FOREIGN PRIORITY APPLICATION NOT NEEDED IN THIS APPLICATION

In the Office Action, the Examiner is apparently under the impression that a certified copy of the foreign priority document is required in this application. *See Office Action, page 2, item 5.*

A certified copy of the priority document was submitted in the parent application 09/618,447 on July 18, 2000. Under this circumstance, Applicant is **not** required to file another certified copy. MPEP states, "Where the benefit of a foreign filing date based on a foreign application is claimed in **a later filed application** (i.e., continuation, continuation-in-part, division) or in a reissue application **and a certified copy of the foreign application as filed, has been filed in a parent** or related application, it is **not** necessary to file an additional

certified copy in the later application.” *Emphasis added; see M.P.E.P. 201.14(b).* Indeed, MPEP goes on to state, “**The applicant** when making such claim for priority **may simply identify the application containing the certified copy.** In such cases, **the examiner should acknowledge the claim** on form PTOL-326.” *Emphasis added; see M.P.E.P. 201.14(b).*

Applicant respectfully requests that the Examiner acknowledge receipt of the priority document in the next official communication.

§ 112, 1ST PARAGRAPH REJECTION

Claims 1-12 stand rejected under 35 U.S.C. § 112, first paragraph. The Examiner alleges that the claims and the specification is not enabling. See *Final Office Action, page 3, item 8, lines 1-13*. This rejection is respectfully traversed.

The Examiner seems to believe that the pixels of the display devices must generate an image for one eye of the observer (left eye for example) in one color and the same pixels must generate an image for the other eye (right eye for example) in a complementary color when the device is in a stereoscopic mode. See *Final Office Action, page 6, lines 6-14*.

Applicant respectfully disagrees. All that is necessary for stereoscopic viewing is that left-eye picture is only viewed by the left-eye (regardless of color) and the right-eye picture is viewed only by the right-eye (also regardless of

color). For plane mode viewing, it is sufficient that both the left-eye and the right-eye pictures are viewed by both the left and the right eyes of the observer.

Thus, Applicant does not necessarily agree with the Examiner's assessment. Nevertheless, claims are amended to promote the prosecution of the application.

First, the claims are amended to recite "each of the first pixels having at least one sub-pixel cell coded with a first color used for creating a left-eye picture and at least one other sub-pixel cell each coded with a color different from the first color and used for creating a right-eye picture and each of the second pixels having at least one sub-pixel cell coded with the first color used for creating the right-eye picture and at least one other sub-pixel cell each coded with the color different from the first color and used for creating the left-eye picture." *See e.g., amended claims 1 and 2.*

A simple observation of Figures 6, 10, 11 and/or 12 and the related descriptions of the original application is ample evidence that the original disclosure supports the recited clarifying feature. For example, as illustrated in Figure 6, the display panel 54 includes first and second pixels P1 and P2. The first pixel P1 includes a red sub-pixel cell r_1 to help create a left-eye picture and blue and green sub-pixel cells b_2 and g_2 to help create a right-eye picture. In a similar manner, the second pixel P2 includes a red sub-pixel cell r_2 to help create the right-eye picture and blue and green sub-pixel cells b_1 and g_1 to help

create the left-eye picture. Clearly, the recited feature is supported by at least Figure 6.

Simple observations of Figures 10, 12 and 13 and related descriptions of the original application also demonstrate support for the recited feature.

Second, the claims are amended to recite “wherein each of said first and second variable filters is overlapped with a portion of said first pixels and a portion of said second pixels such that all sub-pixel cells of each of the first pixels are aligned to a left-eye of an observer through at least one first variable filter and aligned to a right-eye of the observer through at least one second variable filter and all sub-pixel cells of each of the second pixels are aligned to the right-eye of the observer through at least one first variable filter and aligned to the left-eye of the observer through at least one second variable filter.” See *e.g. amended claims 1 and 2*.

Again, a simple observation of the Figures and the related descriptions in the present disclosure amply support the recited clarifying feature. For example, as illustrated in Figure 6, the first pixel P1, the first variable filter (e.g. 58L1) and the left-eye (EL) are aligned. At the same time, the first pixel P1, the second variable filter (e.g. 58L2) and the right-eye (ER) of the observer are aligned. Similarly, the second pixel P2, the first variable filter (e.g. 58R1) and the right-eye (ER) are aligned, and at the same time, the second pixel P2, the second variable filter (e.g. 58L2) and the left-eye (EL) of the observer are aligned.

Since each of the first and second pixels P1 and P2 include sub-pixel cells, the recited feature is supported.

The embodiment as illustrated in Figure 10 also supports the feature as recited above.

Independent claim 7 is amended to recite “all sub-pixel cells of each of the first pixels are aligned to a left-eye of an observer through at least one first color filter and aligned to a right-eye of the observer through at least one second color filter and all sub-pixel cells of each of the second pixels are aligned to the right-eye of the observer through at least one first color filter and aligned to the left-eye of the observer through at least one second color filter.” A simple observation of Figures 12 and 13 amply demonstrates that the recited feature is supported.

Third, claim 1 is amended to recite “applying a first voltage to the first variable filters such that the first variable filters transmit a light of the first color while shutting off light of other colors and simultaneously applying a second voltage different from the first voltage to the second variable filters such that the second variable filters transmit the light of said other colors while shutting off the light of said first color when said stereoscopic mode is selected.” Similar amendments have been made to independent claim 2.

This clarifying feature is clearly supported. For example, as illustrated in Figure 6 and indicated in the related descriptions, in stereoscopic mode, the

first voltage V1 is applied to the first variable filters 58L1, 58R1 to allow transmission of red color only and the second voltage V2 is applied to the second variable filters 58L2 to allow transmission of colors other than the red color – in this instance green and blue colors. *See also Figure 8B.*

The combination of the recited features clearly supports that the left-eye image is viewable only by the left-eye of the observer and the right-eye image is viewable only by the right-eye of the observer when the device is in the stereoscopic mode. For example, as illustrated in Figure 6, the first variable filter transmits the red color left-eye picture r_1 from the first pixel P1 only to the left-eye (*see first variable filter 58L1*) and transmits the red color right-eye picture r_2 from the pixel P2 only to the right eye (*see first variable filter 58R1*). At the same time, the second variable filter transmits the green and blue left-eye pictures g_1 and b_1 from the first pixel P1 only to the left-eye and transmits the green and blue right-eye pictures g_2 and b_2 from the second pixel P2 only to the right-eye (*see second variable filter 58L2*). Since the left and right eyes of the observer only receive the respective left and right-eye pictures in the stereoscopic mode, full stereoscopic effect is achieved.

The recited stereoscopic feature is also achieved by the embodiment as illustrated in Figure 10. While the placements of the variable color barrier 98 and the display device 94 is different from the embodiment as illustrated in Figure 6, it is clear that the left eye of the observer only receives the left-eye

pictures r_1 , g_1 and b_1 and the right eye of the observer only receives right-eye pictures r_2 , g_2 and b_2 when in the stereoscopic mode. *See also Figure 11B.*

Similarly, claim 7 is amended to recite “wherein the light scattering device transmits light from the display device to the color barrier without scatter in response to a first voltage when the light scattering device is in a stereoscopic mode such that the first color from each first pixel and the color different from the first color from each second pixel reaches the left eye of the observer and the first color from each second pixel and the color different from the first color from each first pixel reaches the right eye of the observer.”

This clarifying feature is clearly supported. For example, as illustrated in Figures 12 and 13 and indicated in the related descriptions, in stereoscopic mode, the first voltage V_1 is applied to the light scattering device 110 so that the colored lights from the pixels of the display unit are transmitted through without scattering (no refraction) as indicated by the solid lines. Due to the alignment of the observer's eyes, the color barrier 112, and the display unit 114, the left eye of the observer only receives the left-eye pictures r_1 , g_1 and b_1 and the right eye of the observer only receives right-eye pictures r_2 , g_2 and b_2 when in the stereoscopic mode.

Fourth, independent claim 1 is amended to recite “applying a third voltage different from both the first and second voltages to both of said first and second variable filters such that both the first and second variable filters

transmit light of all colors when said plane mode is selected.” Similar amendments have been made to independent claim 2.

This clarifying feature is clearly supported. For example, as illustrated in Figure 6 and indicated in the related descriptions, in the plane mode, the third voltage V3 is applied to both the first and second variable filters. When this occurs, the variable color filter 58 allows transmission of all colors – i.e. the behaviors of the first and second variable filters are the same. *See also Figure 8A.*

The combination of the recited features clearly support that the left eye pictures r_1 , g_1 and b_1 are viewable by both the left and right eyes of the observer. Similarly, the right eye pictures r_2 , g_2 and b_2 are also viewable by both the left and right eyes of the observer.

For example, as illustrated in Figure 6, the first variable filter 58L1 allows the red color left-eye picture r_1 and the green and blue right-eye pictures g_2 and b_2 all from the first pixel P1 to be transmitted to the left-eye of the observer. Also the second variable filter 58L2 allows the red color right-eye picture r_2 and the green and blue right-eye pictures g_1 and b_1 all from the second pixel P2 to be transmitted to the left-eye of the observer. Thus, the left eye of the observer receives the left eye pictures r_1 , g_1 and b_1 and receives the right eye pictures r_2 , g_2 and b_2 .

At the same time, first variable filter 58R1 allows the red color right-eye picture r_2 and the green and blue left-eye pictures g_1 and b_1 to be transmitted to the right-eye of the observer, and the second variable filter 58L2 allows the red color left-eye picture r_1 and the green and blue left-eye pictures g_2 and b_2 to be transmitted to the right-eye of the observer. Thus, the right eye of the observer also receives both the left eye pictures r_1 , g_1 and b_1 and the right eye pictures r_2 , g_2 and b_2 . Thus, in plane mode, both left and right eyes receive both the left and right pictures.

The recited plane mode feature can also be achieved by the embodiment as illustrated in Figure 10.

Similarly, claim 7 is amended to recite “wherein the light scattering device scatters the light from the display device to the color barrier in response to a second voltage different from said first voltage when the light scattering device is in a plane mode such that the first color and the color other than the first color from both the first and second pixels reach both the left and right eyes of the observer.”

This clarifying feature is clearly supported. For example, as illustrated in Figures 12 and 13 and indicated in the related descriptions, in the plane mode, the second voltage V_0 is applied to the light scattering device 110. When the voltage V_0 is applied, the light scattering device 110 scatters light from each pixel P1, P2 to the adjacent color filters of the color barrier 112 (see dashed

arrows). The scattering can be accomplished by applying an electric field (due to voltage V0) to change the refractive index of the light scattering device 110, which causes the light incident to the light scattering device to refract. *See present disclosure, paragraph [0088]*. The refraction is sufficient to cause the light from both first and second pixels P1 and P2 to reach both the left and the right eye of the observer, and the plane mode viewing is achieved.

As amply demonstrated above, the clarifying amendments to the claims are supported by the disclosure and achieve both the stereoscopic mode and the plane mode viewing.

Applicant respectfully request that the Section 112, first paragraph rejection of claims 1-12 be withdrawn.

§ 103 REJECTION – CONVENTIONAL ART, WISEMAN

Claims 1-6, 10 and 11 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over the Conventional Art described in the background section of the present application in view of Wiseman et al. (US Patent 5,825,337). *See Office Action, pages 7-10, item 10*. Applicant respectfully traverses.

For a Section 103 rejection to be proper, a *prima facie* case of obviousness must be established. *See M.P.E.P. 2142*. One requirement to establish *prima facie case* of obviousness is that the prior art references, when

combined, must teach or suggest all claim limitations. See *M.P.E.P.* 2142; *M.P.E.P.* 706.02(j). Thus, if the cited references fail to teach or suggest one or more elements, then the rejection is improper and must be withdrawn.

In this instance, independent claim 1 recites, in part “applying a first voltage to the first variable filters such that the first variable filters transmit a light of the first color while shutting off light of other colors and simultaneously applying a second voltage different from the first voltage to the second variable filters such that the second variable filters transmit the light of said other colors while shutting off the light of said first color when said stereoscopic mode is selected” and “applying a third voltage different from both the first and second voltages to both of said first and second variable filters such that both the first and second variable filters transmit light of all colors when said plane mode is selected.”

The Examiner admits that the Conventional Art cannot teach or suggest at least this feature. See *Office Action*, page 8, lines 22-24. But the Examiner alleges that Wiseman teaches a switchable color filter. More specifically, the Examiner alleges that the switching colour filter 12 as illustrated in Figures 6 and 7 of Wiseman is equivalent to the variable color barrier as recited.

A closer observation of Wiseman indicates the following. The switching colour filter 12 includes a plurality of switching regions 13. See *Wiseman*, column 5, lines 20-24. Each of the switching regions 13 can be switched

between **one** of a number of colors such as red, green and blue. *Emphasis added; see Wiseman, column 5, lines 24-26.* Thus, at best, **only one** color is allowed to be transmitted through the switching region 13 at any given time.

If only one color can be transmitted at any given time, then the plurality of switching regions 13 as disclosed in Wiseman cannot teach or suggest the feature of transmitting light of all colors when the plane mode is selected. Indeed, Wiseman actually teaches away from this feature. For at least this reason, independent claim 1 is distinguishable over the combination of the Conventional Art and Wiseman.

The motivation provided by the Examiner to combine the Conventional Art and Wiseman is suspect. The Examiner simply alleges that it would have been obvious to combine the Conventional Art and Wiseman “for the benefit of allowing individual switching and controlling of the color filter regions of the color barrier so that the image display quality can be better controlled.” See *Office Action, page 9, lines 6-9.*

To establish a *prima facie* case of obviousness, it is required that the suggestion or motivation to modify the references as the Examiner proposes must be found within the cited reference(s). See *M.P.E.P. 2143.01*. In this instance, the Examiner failed to provide the portion or portions of the cited references where the suggestion and/or the motivation can be found. Indeed, Applicant respectfully submits that none can be found.

The cited reference(s) must be considered in their entirety including disclosures that teach away from the claimed invention. *See M.P.E.P. 2141.02*. If the cited reference(s) teach away from the claimed invention, then the combination is improper and the rejection must fail. As demonstrated above, Wiseman teaches away from the feature as recited in claim 1. Therefore, the combination of the Conventional Art and Wiseman is improper.

It appears that obviousness is assumed merely on the faulty basis that the combination of the Conventional Art and Wiseman includes all claimed elements of the rejected claims. However, it is well established that even if the combination of the references teaches every element of the claimed invention (in this instance, the Conventional Art and Wiseman clearly do not), without some motivation to combine, a rejection based on a *prima facie* case of obviousness is improper. *See MPEP 2143.01*.

It appears that the only motivation to combine is gleaned from the teachings of the present application. This constitutes impermissible hindsight, however. *See MPEP 2141*. Simply put, there is no showing in the Office Action that the conclusion of obviousness was reached on the basis of facts gleaned from the prior art, and not from the claimed invention. *See MPEP 2143*.

Further, the Examiner does recognize the Conventional Art and Wiseman cannot teach the feature regarding the plane mode. *See Office Action, page 9, lines 13-15*. The Examiner attempts to cure this deficiency by simply alleging

that 1) the plane mode criterion is very standard knowledge in the art and 2) it would have been obvious to make the color barrier without the specific color selection. *See Office Action, page 9, lines 14-17.*

Regarding 1), the Examiner is essentially taking Official Notice that the plane mode is standard knowledge. Applicant challenges the Official Notice taken. Applicant respectfully requests that the Examiner provide relevant prior art and cite the particular portions in support of the position taken in the Official Notice. *See M.P.E.P. 2144.03.*

Regarding 2), again, the Examiner does not provide any basis to make such allegation. No reference is cited to provide the required suggestion or motivation to modify Wiseman and the Conventional Art as the Examiner proposes.

For at least the above stated reasons, independent claim 1 is distinguishable over the combination of the Conventional Art and Wiseman.

Independent claim 2 recites, in part “a switch connected between said variable color barrier unit and said voltage source to apply said first voltage to the first variable filters such that the first variable filters transmit a light of the first color while shutting off light of other colors and to simultaneously apply said second voltage to said second variable filters such that the second variable filters transmit light of said other colors while shutting off light of said first color when said switch is in the stereoscopic mode, and to apply said third

voltage to said both of said first and second variable filters of said variable color barrier unit such that both the first and second variable filters transmit light of all colors when said switch is in the plane mode.” It is clear that claim 2 is distinguishable over the combination of the Conventional Art and Wiseman.

Claims 3-6, 10 and 11 depend from independent claim 1 or 2 directly or indirectly. Therefore, for at least the reasons stated with respect to independent claims 1 and 2, claims 3-6, 10 and 11 are also distinguishable over the combination of the Conventional Art and Wiseman.

Applicant respectfully request that the rejection of claims 1-6, 10 and 11 based on the Conventional Art and Wiseman be withdrawn.

§ 103 REJECTION –HAMAGISHI

Claims 7-9 and 12 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable Hamagishi et al. (US Patent 5,751,479). *See Office Action, pages 10-11, item 11.* Applicant respectfully traverses.

In this instance, independent claim 7 recites, in part “wherein ... all sub-pixel cells of each of the first pixels are aligned to a left-eye of an observer through at least one first color filter and aligned to a right-eye of the observer through at least one second color filter and all sub-pixel cells of each of the second pixels are aligned to the right-eye of the observer through at least one first color filter and aligned to the left-eye of the observer through at least one

second color filter and wherein the first color filter transmits a light of the first color while shutting off light of the color different from the first color and the second color filter transmits the light of the color different from the first color while shutting off the light of the first color.”

In the Office Action, the Examiner alleges that the pixels 1R, 1G and 1B as disclosed in Hamagishi are equivalent to the sub-pixel cells as recited in the claim. *See Office Action, page 11, lines 8-11.* Hamagishi explicitly indicates that when 3-D color images are to be generated, right eye images and left eye images for each color are formed one line after the other line for each line. For example, a red color left eye image is formed for one red pixel 1R and a red color right eye image is formed for the next red pixel 1R. *See Hamagishi, column 6, lines 16-19.* The 3-D images for the blue and green colors is achieved in a similar fashion. *See Hamagishi, column 6, lines 20-23.* In other words, each color pixel 1R, 1B or 1G is aligned to only one of the left eye or the right eye with the filters of the color filter 3 but not both. This is clearly evident in the Figures of Hamagishi. *See Figure 6 and 7.*

Thus, no matter how one arranges the color pixels 1R, 1B and 1C to be the sub-pixels, Hamagishi cannot teach or suggest the feature of all sub-pixel cells of the first pixel (or second pixel) being aligned to the left eye of the observer through the first color filter and being aligned to the right eye of the observer through the second color filter. Further, there is no motivation to

modify Hamagishi to render the claimed invention obvious. For at least this reason, claim 7 is distinguishable over Hamagishi.

Claims 8-9 and 12 depend from independent claim 7 directly or indirectly. Therefore, for at least the reasons stated with respect to the independent claim 7, claims 8-9 and 12 are also distinguishable over Hamagishi.

Applicant respectfully request that the rejection of claims 8-9 and 12 based on the Hamagishi be withdrawn.

NEW CLAIMS

Claims 13-22 are added through this reply. The new claims depend from independent claims 1, 2 or 7 directly or indirectly, and do not add new matter.

Applicant respectfully requests that the new claims be allowed due to their dependency on the independent claims.

CONCLUSION

All objections and rejections raised in the Office Action having been addressed, it is respectfully submitted that the present application is in condition for allowance. Should there be any outstanding matters that need to be resolved, the Examiner is respectfully requested to contact Hyung Sohn (Reg. No. 44,346), to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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